

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) Apparatus comprising an audio distribution unit (10) having means (11) for providing audio signals from audio sources and output ports (12A...12D) for supplying sets of audio transducers, each said set comprising at least a first audio transducer (14A(L)) and a second audio transducer (14A(R)) and having associated therewith at least one remote unit (34A), the first and second audio transducers (14A(L),14A(R)) and the remote unit (34A) being connected to the audio distribution unit (10) by a set of four conductors, the apparatus further comprising means (22A...22D, 44, 76, 80-96) for supplying audio signals to each of the audio transducers (14A(L),14A(R)) by way of a respective pair of said four conductors and transferring at least one of power and data signals between said audio distribution unit (10) and said remote unit (34A), [[all]] by way of at least two of [[the]] said four conductors.

2. (Currently amended) ~~Apparatus according to claim 1~~ Apparatus comprising an audio distribution unit (10) having means (11) for providing audio signals from audio sources and output ports (12A...12D) for supplying sets of audio transducers, each said set comprising at least a first audio transducer (14A(L)) and a second audio transducer (14A(R)) and having associated therewith at least one remote unit (34A), the first and second audio transducers (14A(L),14A(R)) and the remote unit (34A) being connected to the audio distribution unit (10) by a set of four conductors, the apparatus further comprising means (22A...22D,44,76,80-96) for supplying audio signals to the audio transducers (14A(L),14A(R)) and transferring at least one of power and data signals between said audio distribution unit (10) and said remote unit (34A), all by way of the four conductors, wherein the audio distribution unit (10) comprises first and second power amplifiers (24A(L),24A(R)), a first conductor (26A(L1)) connects one terminal of each of said first and second audio transducers (14A(L),14A(R)) and one terminal of the remote unit (34A) to a ground terminal of the audio distribution unit (10), a second (26A(L2)) of the conductors connects a drive-signal terminal of said first audio transducer (14A(L)) to a corresponding output terminal (30A(L)) of said first power amplifier (24A(L)), a third conductor (26A(R1)) connects a second terminal of the remote unit (34A) to an interface unit (44) of the audio distribution unit (10), and a fourth conductor (26A(R2)) connects a drive-signal terminal of said second audio transducer (14A(R)) to a corresponding output terminal (30A(R)) of said second power amplifier (24A(R)), the audio signals being supplied by way of the first, second and fourth conductors and the at least one of power and data signals being transferred by way of the first and third conductors.

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

3. (Currently amended) ~~Apparatus according to claim 1~~ Apparatus comprising an audio distribution unit (10) having means (11) for providing audio signals from audio sources and output ports (12A...12D) for supplying sets of audio transducers, each said set comprising at least a first audio transducer (14A(L)) and a second audio transducer (14A(R)) and having associated therewith at least one remote unit (34A), the first and second audio transducers (14A(L),14A(R)) and the remote unit (34A) being connected to the audio distribution unit (10) by a set of four conductors, the apparatus further comprising means (22A...22D,44,76,80-96) for supplying audio signals to the audio transducers (14A(L),14A(R)) and transferring at least one of power and data signals between said audio distribution unit (10) and said remote unit (34A), all by way of the four conductors, wherein the audio distribution unit (10) comprises first and second power amplifiers (24A(L),24A(R)) each connected to a respective one of two grounds (1,2) that are separated electrically from each other, a first conductor (26A(L1)) connects one drive-signal terminal of the first audio transducer (14A(L)) to a ground terminal of the first power amplifier (24A(L)), a second conductor (26A(L2)) connects the other drive-signal terminal of the first audio transducer (14A(L)) to an output terminal (30A(L)) of the first power amplifier (24A(L)), a third conductor (26A(R1)) connects one terminal of the second audio transducer (14A(R)) to a ground terminal of the second power amplifier (24A(R)), and a fourth conductor (26A(R2)) connects the other drive-signal terminal of the second audio transducer (14A(R)) to a corresponding output terminal (30A(R)) of the second power amplifier (24A(R)), the audio signals being supplied to the first audio transducer (14A(L)) by way of the first and second conductors, and to the second audio transducer (14A(R)) by way of the third and fourth conductors, and said at least one of power and data signals being transferred by way of the first (26A(L1)) and third (26A(R1)) conductors.

4. (Original) Apparatus comprising an audio distribution unit (10) having means (11) for providing audio signals from audio sources and output ports (12A...12D) each having a line terminal and a ground terminal, at least one set of audio transducers, said set comprising at least a first audio transducer (14A(L)) and a second audio transducer (14A(R)) connected to a respective set (12A(L), 12A(R)) of said output ports by a set of conductors comprising a first conductor (26A(L1)), a second conductor (26A(L2)), a third conductor (26A(R1)) and a fourth conductor (26A(R2)), said apparatus further comprising at least one remote unit (34A) associated with said set of audio transducers, wherein the audio distribution unit (10) has a first ground (1) and a separate second ground (2), said set of output ports including a first output port (12A(L)) and a second output port (12A(R)) connected to the first ground (1) and second ground (2), respectively, said first conductor (26A(L1)) and said second conductor (26A(L2)) connecting respective drive-signal terminals of said first audio transducer (14A(L)) to the ground terminal and line terminal, respectively, of said first output port (12A(L)), and said third conductor (26A(R1)) and said fourth conductor (26A(R2)) connecting respective drive signal terminals of said second audio transducer (14A(R)) to the ground terminal and line terminal, respectively, of said second output port (12A(R)), the remote unit (34A) being

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

connected to said first ground (1) and said second ground (2), the apparatus further comprising means (22A...22D,44,76,80-96) for transferring at least one of power and data signals between said audio distribution unit (10) and said remote unit (34A) by way of said first ground (1) and said second ground (2).

5. (Original) Apparatus according to claim 4, wherein the remote unit (34A) is connected to the first ground (1) and second ground (2) by the first conductor (26A(L1)) and the third conductor (26A(R1)), respectively, the power or data signals being transferred by way of these first and second conductors.

6. (Original) Apparatus according to claim 4, wherein the remote unit (34A) is connected to said first ground (1) and said second ground (2) by conductors other than the conductors connected to the drive signal terminals of the audio transducers (26A(L1),26A(L2),26A(R1),26A(R2)).

7. (Original) Apparatus according to claim 4, comprising a plurality of said sets of at least two audio transducers (14A(L),14A(R),...14D(L),14D(R)) connected to a corresponding plurality of sets of said output ports, and a corresponding plurality of remote units (34A...34D), each remote unit being connected to said first ground (1) and second ground (2) and associated with a respective one of the sets of audio transducers, and wherein the transferring means (44,76,80-96) comprises, at each of said remote units (34A-34D), means (84,90,94) for transmitting to said audio distribution unit (10) data signals including an identifier specific to the set of audio transducers with which that remote unit is associated and, at the audio distribution unit (10), means (40,44) for receiving said data signals and using said identifier to identify the remote unit, whereby the data signal was transmitted.

8. (Original) Apparatus according to claim 4, comprising a plurality of said sets of audio transducers (14A(L),14A(R),...14D(L),14D(R)) connected to a plurality of said sets of output ports (12A...12D) by a plurality of said sets of conductors, and a corresponding plurality of said remote units (34A,...34D), connected to said first ground (1) and second ground (2), wherein at least one of said remote units (34A,...34D) is co-located with one of said sets of audio transducers and connected to the first ground (1) and the second ground (2) by one or more conductors of a said set of conductors connecting a different set of audio transducer units (14A,...14D) to the audio distribution unit (10) and the transferring means (44,76,80-96) comprises, at each of said remote units (34A-34D), means (84, 90, 94) for transmitting to said audio distribution unit (10) data signals each including an identifier specific to the set of audio transducers with which that remote unit is associated and, at the audio distribution unit (10), means (40,44) for receiving said data signals and using said identifier to identify the transmitting remote unit.

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

9. (Original) Apparatus according to claim 4, wherein the audio distribution unit (10) has a third ground (3) separate from both of the first ground (1) and the second ground (2), said set of output ports includes a third output port (12A(C)), said at least one set of audio transducers (14A(L), 14A(R)) comprises a third audio transducer (14A(C)) and said set of conductors further comprises a fifth conductor (26A(C1)) and a sixth conductor (26A(C2)) connecting drive terminals of said third audio transducer (14A(C)) to ground and line terminals, respectively, of said third output port (30A(C)), the remote unit (34A) is connected also to the third ground (3), and the transferring means (44, 76, 80-96) is connected to the first, second and third grounds (1, 2, 3) for transference of power to the remote unit (34A) via one pair of the three grounds and transference of said data signals via a different pair of the three grounds (1, 2, 3).

10. (Original) Apparatus according to claim 4, wherein there is provided at least a second set of audio transducers (14B(L), 14B(R)) connected to the audio distribution unit (10) by a second set of conductors and a second remote unit (34B) associated therewith, and the audio distribution unit (10) has a third ground (3) separate from the first ground (1) and second ground (2) and a second set of said output ports (12B(L), 12B(R)) each having a ground terminal and a line terminal, the second set of output ports included one port (12B(L)) with its ground terminal connected to the ground (1) and another port (12B(R)) with its terminal connected to the third ground (3), drive terminals of one of the audio transducers (14B(L)) of the second set of audio transducers being connected to said one port (12B(L)) and drive terminals of a second audio transducer (14B(R)) of said second set being connected to said another output port (12B(R)), and wherein the transferring means (44, 44/2, 76, 80-96) is connected also between said first ground (1) and said third ground (3) for transferring either or both of power and data signals also between said audio distribution unit (10) and said second remote unit (34B), the apparatus further comprising means (40) for determining the set of audio transducers to which a particular one of said data signals relates.

11. (Original) Apparatus according to claim 10, wherein the transferring means (44, 44/2) is coupled to the first and second sets of audio transducers, respectively, and to the first, second and third grounds (1, 2, 3) the determining means (40) determining the set of audio transducers according to the interface unit whereby the data signal is communicated.

12. (Original) Apparatus according to claim 4, wherein the transferring means comprises, at the or each remote unit (34A-34D), transmitter means (84, 90, 94) coupled to the grounds for transmitting said data signals to the audio distribution unit (10) and, at the audio distribution unit (10), receiver means (72) coupled to said grounds for receiving said data signals and means (40) responsive to said data signals for controlling operation of said audio distribution unit (10) in dependence thereupon.

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

13. (Original) Apparatus according to claim 4, wherein the transferring means (44,76,80-96) comprises, at the audio distribution unit (10) transmitter means (50,66) for transmitting data signals via said grounds and the or each remote unit (34A...34D) further comprises corresponding receiver means (82) connected between the said grounds for receiving said data signals.

14. (Original) Apparatus according to claim 4, wherein said transferring means (44,76,80-96) comprises means (50,54) for establishing a potential difference between the pair of grounds used for power transfer and the remote unit (34A...34D) comprises means (76) coupled to the grounds for extracting power therefrom.

15. (Original) Apparatus according to claim 4, wherein the audio distribution unit (10) comprises a preamplifier unit (16) and one or more power amplifier units (22A...22D), each connected to a corresponding set of audio transducers by way of the corresponding set of output ports 12A...12D, the or each audio power amplifier unit 22A...22D comprising a first power amplifier (24A(L)...24D(L)), a second power amplifier (24A(R)...24D(R)) and a coupling device (32A...32D), the first power amplifier (24A(L)...24D(L)) having a ground terminal and an output terminal connected to, respectively, the ground terminal and line terminal of one (12A(L)...12D(L)) of the set of output ports, the ground terminal being connected also to said first ground (1), and an input terminal (21A(L)...21D(L)) connected to a first audio output port (20A(L)...20D(L)) of the preamplifier unit (16), the second power amplifier (24A(R)...24D(R)) having a ground terminal and an output terminal connected to, respectively, the ground terminal and line terminal of another (12A(R)...12D(R)) of the set of output ports, said coupling device (32A...32D) connecting a second audio output port (20A(R)...20D(R)) of the preamplifier (16) to an input (21A(R)...21D(R)) of the second power amplifier (24A(R)...24D(R)).

16. (Original) Apparatus according to claim 15, wherein the or each coupling device (32A...32D) comprises a differential amplifier having a signal output terminal and an output ground terminal connected to, respectively, an input (21A(R)...21D(R)) of the second power amplifier (24A(R)...24D(R)) and said second ground (2), a first input terminal connected to said first ground (1), and a second input terminal connected to said second audio output port (20A(R)...20D(R)) of the preamplifier unit (16).

17. (Original) Apparatus according to claim 15, wherein the or each coupling device (32A) comprises an isolation amplifier having an input connected to said second audio output port (20A(R)) of the preamplifier unit (16), and an output connected to an input (21A(R)) of the second power amplifier (24A(R)).

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

18. (Original) Apparatus according to claim 15, wherein the coupling device (32A) comprises a capacitor connected between said second audio output port (20A(R)) of the preamplifier unit (16) and an input of the second power amplifier (24A(R)).

19. (Original) Apparatus according to claim 4, wherein the remote unit (34A...34D) comprises infrared receiver means (106) for receiving an infrared signal from a separate control unit (107) and transmitter means (84,90,94) for transmitting corresponding signals via said grounds, and the audio distribution unit comprises means for detecting said corresponding signals.

20. (Original) Apparatus according to claim 4, wherein the remote unit (34A...34D) comprises voice circuitry (102) for converting signals from a microphone (96A) into voice signals for transmission to said audio distribution unit (10) and the audio distribution unit (10) further comprises means (16) for relaying the voice signals to one or more of said sets of audio transducer units.

21. (Original) Apparatus according to claim 20, wherein the remote unit (34A) includes means (84,90,94) for associating with the voice signal an address of said remote unit (34A) and the audio distribution unit (10) comprises means (40,16) for detecting said address and broadcasting the voice signals to audio transducer sets other than that from which the voice signals originated.

22. (Original) Apparatus according to claim 20, wherein the remote unit further comprises means (84,90,94) for associating with the voice signals an address of a recipient set of audio transducers to which the voice signals are to be sent, and the audio distribution unit (10) comprises means (40,16) for detecting the address and controlling the audio distribution unit to transmit the voice signal to the recipient set of audio transducers.

23. (Original) Apparatus according to claim 14, wherein the means (76) for extracting power comprises means responsive to a voice control signal for modulating at least a part of the power extracted for the remote unit, the power transfer means at the audio distribution unit (10) comprises a constant current source and the audio distribution unit further comprises means for detecting the modulation as a corresponding fluctuation of a potential difference between said grounds to recover the voice signals and relaying the voice signals to one or more of said sets of audio transducer units, the remote unit further comprising voice circuitry (102) for converting signals from a microphone (96A) to produce said voice control signal.

24. (Original) Apparatus according to claim 23, wherein the remote unit has a backlight supplied with current by the power extraction unit and the power modulating means modulates the backlight current with the voice control signal.

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

25. (Withdrawn) Apparatus comprising an audio distribution unit (10) and a plurality of sets each of at least one audio transducer (14A(L), 14A(R)) connected by a signal transmission path to the audio distribution unit, at least one of the sets of at least one audio transducer being remote from the audio distribution unit and having a remote unit (34A) associated therewith, the remote unit comprising voice circuitry (102) for transmitting voice signals from a microphone (96A) via a transmission channel interconnecting the remote unit and the audio distribution unit, and means (84,90,94) for adding to the signals at least one address corresponding to one of the sets of audio transducers, and the audio distribution unit (10) comprises means (104) for extracting the voice signals from the transmission channel and applying the extracted voice signals to an input of the audio distribution unit (10), and means (16) for detecting the address and, in dependence thereon, directing the voice signals to one or more audio transducer sets other than that from which the voice signals originated.

26. (Withdrawn) Apparatus according to claim 25, wherein the means (84,90,94) for adding at least one address is arranged to add the address of at least one of the other audio transducer sets.

27. (Withdrawn) Apparatus according to claim 25, wherein the means (84,90,94) for adding at least one address adds only the address of the remote unit from which the voice signal is being transmitted, and the audio distribution unit comprises means (16,40) for detecting said address and distributing the voice signal to all audio transducer sets other than that set associated with the remote unit transmitting the voice signal.

28. (Withdrawn) Apparatus according to claim 25, wherein said transmission path and said transmission channel comprise the same medium.

29. (Withdrawn) Apparatus according to claim 28, wherein said transmission channel comprises a pair of conductors interconnecting one or more of the audio transducer units and the audio distribution unit.

30. (Original) Apparatus according to claim 4, further comprising an infrared transmitter coupled to the audio distribution unit for transmitting infrared control signals for controlling one of the audio sources, and wherein the remote unit comprises a receiver for receiving, from an infrared remote control device, infrared signals corresponding to said infrared control signals, generating in response thereto corresponding source control signals, and transmitting the source control signals to the audio distribution unit, the audio distribution unit having means for detecting said source control signals and controlling the infrared transmitter in dependence thereupon to generate said infrared control signals.

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

31. (Original) Apparatus according to claim 30, wherein said means for transmitting said data signals and said means for transmitting the source control signals transmit their respective signals via the same transmission path but each using a different form of modulation.

32. (Original) Apparatus according to claim 31, wherein the means for transmitting the source control signals uses amplitude shift keying (ASK) and the means for transmitting the data signals uses frequency shift keying (FSK).

33. (Withdrawn) Apparatus comprising an audio distribution unit (10) having means (11) for providing audio signals from at least one audio source controllable by infrared control signals, at least one audio transducer at a location remote from the audio distribution unit and connected thereto by a signal transmission path, and a remote unit associated with the audio transducer and connected thereto by a transmission channel, the apparatus further comprising an infrared transmitter for transmitting said infrared control signals for controlling said audio source, and wherein the remote unit comprises a receiver for receiving, from an infrared remote control device, infrared signals corresponding to said infrared control signals, generating in response thereto corresponding source control signals, and transmitting the source control signals to the audio distribution unit by way said transmission channel, the audio distribution unit having means for detecting said source control signals and controlling the infrared transmitter in dependence thereupon to generate said infrared control signals.

34. (Withdrawn) Apparatus according to claim 33, wherein the means for transmitting said data signals and said means for transmitting the source control signals transmit their respective signals via the same transmission path but each using a different form of modulation.

35. (Withdrawn) Apparatus according to claim 30, wherein the means for transmitting the source control signals uses amplitude shift keying (ASK) and the means for transmitting the data signals uses frequency shift keying (FSK).

36. (Withdrawn) Apparatus according to claim 33, wherein said transmission path and said transmission channel comprise the same medium.

37. (Withdrawn) Apparatus according to claim 36, wherein said transmission channel comprises a pair of conductors interconnecting one or more of the audio transducer units and the audio distribution unit.

38. (Original) An audio distribution unit (10) for the apparatus of claim 4 and having means (11) for providing audio signals from audio sources, a first ground (1), a separate second ground (2), at

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

least one set of output ports (12A...12D) each having a line terminal and a ground terminal, said set of output ports including a first output port (12A(L)) and a second output port (12A(R)), each having a line terminal and a ground terminal, having their respective ground terminals connected to the first ground (1) and second ground (2), respectively, and their line terminals for connection to a first and a second, respectively, of a corresponding set of audio transducers, and means (44) for transferring by way of said first ground (1) and said second ground (2) and said first and second output ports at least one of power and data signals between said audio distribution unit (10) and a remote unit (34A) associated with said set of audio transducers.

39. (Original) An audio distribution unit according to claim 38, for use with a plurality of said sets of at least two audio transducers (14A(L),14A(R),...14D(L),14D(R)) connected to a corresponding plurality of sets of said output ports, and a corresponding plurality of remote units (34A...34D), each remote unit being connected to said first ground (1) and second ground (2) and associated with a respective one of the sets of audio transducers, the transferring means (76,80-96) at each of said remote units (34A-34D) comprising means (84,90,94) for transmitting to said audio distribution unit (10) data signals including an identifier specific to the set of audio transducers with which that remote unit is associated, the audio distribution unit (10) further comprising means (40,44) for receiving said data signals and using said identifier to identify the remote unit whereby the data signal was transmitted.

40. (Original) An audio distribution unit according to claim 39, for use in apparatus according to claim 8, further comprising means (40,44) for receiving said data signals and using said identifier to identify the transmitting remote unit.

41. (Original) An audio distribution unit according to claim 38, for use in the apparatus according to claim 9, further comprising a third ground (3) separate from both of the first ground (1) and the second ground (2), and wherein said set of output ports includes a third output port (12A(C)), and the transferring means (44) is connected to the first, second and third grounds (1,2,3) for transference of power to the remote unit (34A) via one pair of the three grounds and transference of said data signals via a different pair of the three grounds (1,2,3).

42. (Original) An audio distribution unit according to claim 38, for use in apparatus according to claim 10, further comprising a third ground (3) separate from the first ground (1) and second ground (2) and further comprising a second set of said output ports (12B(L), 12B(R)) each having a ground terminal and a line terminal, the second set of output ports included one port (12B(L)) with its ground terminal connected to the first ground (1) and another port (12B(R)) with its ground terminal connected to the third ground (3), drive terminals of one of the audio transducers (14B(L)) of the second set of audio transducers being connected to said one port (12B(L)) and drive terminals of a

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

second audio transducer (14B(R)) of said second set being connected to said another output port (12B(R)), and wherein the transferring means (44,44/2) is connected also between said first ground (1) and said third ground (3) for transferring either or both of power and data signals also between said audio distribution unit (10) and said second remote unit (34B), the audio distribution unit further comprising means (40) for determining the set of audio transducers to which a particular one of said data signals relates.

43. (Original) An audio distribution unit according to claim 42, for use in apparatus according to claim 10, wherein the transferring means (44,44/2) comprises a first interface unit and a second interface unit coupled to the first and second sets of output ports, respectively, and to different pairs of the first, second and third grounds (1,2,3), the determining means (40) determining the set of audio transducers according to the interface unit whereby the data signal is communicated.

44. (Original) An audio distribution unit according to claim 38, for use in apparatus according to claim 12, further comprising receiver means (72) coupled to said grounds for receiving said data signals and means (40) responsive to said data signals for controlling operation of said audio distribution unit (10) in dependence thereupon.

45. (Original) An audio distribution unit according to claim 38, for use in apparatus according to claim 13, wherein the transferring means (44) comprises transmitter means (50,66) for transmitting data signals via said grounds.

46. (Original) An audio distribution unit according to claim 38, for use in apparatus according to claim 14, wherein said transferring means (44) comprises means (54) for establishing a potential difference between the pair of grounds used for power transfer .

47. (Original) An audio distribution unit according to claim 38, for use in apparatus according to claim 15, further comprising a preamplifier unit (16) and one or more power amplifier units (22A...22D), each connected to a corresponding set of audio transducers by way of the corresponding set of output ports (12A...12D), the or each audio power amplifier unit (22A...22D) comprising a first power amplifier (24A(L)...24D(L)), a second power amplifier (24A(R)...24D(R)) and a coupling device (32A...32D), the first power amplifier (24A(L)...24D(L)) having a ground terminal and an output terminal connected to, respectively, the ground terminal and line terminal of one (12A(L)...12D(L)) of the set of output ports, the ground terminal being connected also to said first ground (1), and an input terminal (21A(L)...21D(L)) connected to a first audio output port (20A(L)...20D(L)) of the preamplifier unit (16), the second power amplifier (24A(R)...24D(R)) having a ground terminal and an output terminal connected to, respectively, the ground terminal and line terminal of another (12A(R)...12D(R)) of the set of output ports, said coupling device

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

(32A...32D) connecting a second audio output port (20A(R)...20D(R)) of the preamplifier (16) to an input (22A(R)...22D(R)) of the second power amplifier (24A(R)...24D(R)).

48. (Original) An audio distribution unit according to claim 47, for use in apparatus according to claim 16, wherein the or each coupling device (32A...32D) comprises a differential amplifier having a signal output terminal and an output ground terminal connected to, respectively, an input (22A(R)...22D(R)) of the second power amplifier (24A(R)...24D(R)) and said second ground (2), a first input terminal connected to said first ground (1), and a second input terminal connected to said second audio output port (20A(R)...20D(R)) of the preamplifier unit (16).

49. (Original) An audio distribution unit according to claim 47, for use in apparatus according to claim 17, wherein the or each coupling device (32A) comprises an isolation amplifier having an input connected to said second audio output port (20A(R)) of the preamplifier unit (16), and an output connected to an input (22A(R)) of the second power amplifier (24A(R)).

50. (Original) An audio distribution unit according to claim 47, for use in apparatus according to claim 18, wherein the coupling device (32A) comprises a capacitor connected between said second audio output port (20A(R)) of the preamplifier unit (16) and an input of the second power amplifier (24A(R)).

51. (Original) An audio distribution unit according to claim 38, for use in apparatus according to claim 19, and comprising means for detecting, between said grounds, signals corresponding to infrared signals received by the remote unit.

52. (Original) An audio distribution unit according to claim 39, for use in apparatus according to claim 20, further comprises means (16) for relaying the voice signals to one or more of said sets of output ports for said audio transducer units.

53. (Original) An audio distribution unit according to claim 52, for use in apparatus according to claim 21, further comprising means for detecting said address and broadcasting the voice signals to audio transducer sets other than that from which the voice signals originated.

54. (Original) An audio distribution unit according to claim 52, for use in apparatus according to claim 22, further comprising means (40,16) for detecting the address and controlling the audio distribution unit to transmit the voice signal to the recipient set of audio transducers.

55. (Original) An audio distribution unit according to claim 46, for use in apparatus according to claim 23, wherein the power transfer means (10) comprises a constant current source and the audio

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

distribution unit further comprises means (40,16) for detecting the modulation as a corresponding fluctuation of a potential difference between said grounds to recover the voice signals and relaying the voice signals to one or more of said sets of output ports for the audio transducer units.

56. (Withdrawn) An audio distribution unit (10) for use with a plurality of sets each of at least one audio transducer (14A(L), 14A(R)) connected by a signal transmission path to the audio distribution unit, at least one of the sets of at least one audio transducer being remote from the audio distribution unit and having a remote unit (34A) associated therewith, the remote unit comprising voice circuitry (102) for transmitting voice signals from a microphone (96A) via a transmission channel interconnecting the remote unit and the audio distribution unit, and means (84,90,94) for adding to the signals at least one address corresponding to one of the sets of audio transducers, said audio distribution unit (10) comprising means (104) for extracting the voice signals from the transmission channel and means (16) for detecting the address and, in dependence thereon, directing the voice signals to one or more audio transducer sets other than that from which the voice signals originated.

57. (Withdrawn) An audio distribution unit according to claim 56, wherein the detecting means (16,40) is arranged to detect said address of at least one of the other audio transducer sets and direct said voice signals thereto.

58. (Withdrawn) An audio distribution unit according to claim 57, wherein the means (16,40) for detecting said address is arranged to distribute the voice signal to all audio transducer sets other than that set associated with the remote unit transmitting the voice signal.

59. (Withdrawn) An audio distribution unit according to claim 38, for use with a remote unit comprising a receiver for receiving, from an infrared remote control device, infrared signals corresponding to said infrared control signals, generating in response thereto corresponding source control signals, and transmitting the source control signals to the audio distribution unit, the audio distribution unit having an infrared transmitter coupled to the audio distribution unit for transmitting infrared control signals for controlling one of the audio sources, and means for detecting said source control signals and controlling the infrared transmitter in dependence thereupon to generate said infrared control signals.

60. (Withdrawn) An audio distribution unit according to claim 59, wherein said receiver is arranged to receive and demodulate both said data signals and said source control signals.

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

61. (Withdrawn) An audio distribution unit according to claim 60, wherein the receiver comprises means for demodulating said source control signals modulated using amplitude shift keying (ASK) and said data signals modulated using frequency shift keying (FSK).

62. (Withdrawn) An audio distribution unit (10) having means (11) for providing audio signals from at least one audio source controllable by infrared control signals, and configured for use with at least one audio transducer at a location remote from the audio distribution unit and connected thereto by a signal transmission path, and a remote unit associated with the audio transducer and connected thereto by a transmission channel, the remote unit comprising a receiver for receiving, from an infrared remote control device, infrared signals corresponding to said infrared control signals, generating in response thereto corresponding source control signals, and transmitting the source control signals to the audio distribution unit by way of said transmission channel, the audio distribution unit having an infrared transmitter for transmitting said infrared control signals for controlling said audio source, and means for detecting said source control signals and controlling the infrared transmitter in dependence thereupon to generate said infrared control signals.

63. (Withdrawn) An audio distribution unit according to claim 62, wherein the receiver comprises means for receiving both said data signals and said source control signals via the same transmission path.

64. (Withdrawn) An audio distribution unit according to claim 62, wherein the receiver comprises means for demodulating said source control signals modulated using amplitude shift keying (ASK) and said data signals modulated using frequency shift keying (FSK).

65. (Original) An audio distribution unit according to claim 38, in an assemblage with one or more of said remote units.

66. (Original) Apparatus according to claim 1, wherein the remote unit (34A...34D) comprises infrared receiver means (106) for receiving an infrared signal from a separate control unit (107) and transmitter means (84,90,94) for transmitting corresponding signals to the audio distribution unit (10), and the audio distribution unit comprises means for detecting said corresponding signals.

67. (Original) Apparatus according to claim 1, wherein the remote unit (34A...34D) comprises voice circuitry (102) for converting signals from a microphone (96A) into voice signals for transmission to said audio distribution unit (10) and the audio distribution unit (10) further comprises means (16) for relaying the voice signals to one or more of said sets of audio transducer units.

Appl. No. 09/667,434
Reply to Office action of May 17, 2005
Atty. Docket No. AP628US

68. (New) Apparatus according to claim 2, wherein the remote unit (34A...34D) comprises infrared receiver means (106) for receiving an infrared signal from a separate control unit (107) and transmitter means (84,90,94) for transmitting corresponding signals to the audio distribution unit (10), and the audio distribution unit comprises means for detecting said corresponding signals.

69. (New) Apparatus according to claim 2, wherein the remote unit (34A...34D) comprises voice circuitry (102) for converting signals from a microphone (96A) into voice signals for transmission to said audio distribution unit (10) and the audio distribution unit (10) further comprises means (16) for relaying the voice signals to one or more of said sets of audio transducer units.

70. (New) Apparatus according to claim 3, wherein the remote unit (34A...34D) comprises infrared receiver means (106) for receiving an infrared signal from a separate control unit (107) and transmitter means (84,90,94) for transmitting corresponding signals to the audio distribution unit (10), and the audio distribution unit comprises means for detecting said corresponding signals.

71. (New) Apparatus according to claim 3, wherein the remote unit (34A...34D) comprises voice circuitry (102) for converting signals from a microphone (96A) into voice signals for transmission to said audio distribution unit (10) and the audio distribution unit (10) further comprises means (16) for relaying the voice signals to one or more of said sets of audio transducer units.

72. (New) Apparatus according to claim 4, wherein the remote unit (34A...34D) comprises infrared receiver means (106) for receiving an infrared signal from a separate control unit (107) and transmitter means (84,90,94) for transmitting corresponding signals to the audio distribution unit (10), and the audio distribution unit comprises means for detecting said corresponding signals.

73. (New) Apparatus according to claim 4, wherein the remote unit (34A...34D) comprises voice circuitry (102) for converting signals from a microphone (96A) into voice signals for transmission to said audio distribution unit (10) and the audio distribution unit (10) further comprises means (16) for relaying the voice signals to one or more of said sets of audio transducer units.

74. (New) Apparatus according to claim 38, wherein the remote unit (34A...34D) comprises infrared receiver means (106) for receiving an infrared signal from a separate control unit (107) and transmitter means (84,90,94) for transmitting corresponding signals to the audio distribution unit (10), and the audio distribution unit comprises means for detecting said corresponding signals.

75. (New) Apparatus according to claim 38, wherein the remote unit (34A...34D) comprises voice circuitry (102) for converting signals from a microphone (96A) into voice signals for

Appl. No. 09/667,434

Reply to Office action of May 17, 2005

Atty. Docket No. AP628US

transmission to said audio distribution unit (10) and the audio distribution unit (10) further comprises means (16) for relaying the voice signals to one or more of said sets of audio transducer units.